

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for processing data packets for transmission over a communications channel, comprising:

pre-processing data packets for transmission over the communications channel including performing a first coding operation on those data packets to form pre-processed data packets;

detecting a current channel condition; and

processing the pre-processed data packets including modulating the pre-processed data packets using a modulation scheme selected from a group of different modulation schemes based on the detected current channel condition and coding the pre-processed data packets using a coding rate selected from a group of different coding rates based on the detected current channel condition to form processed data packets ready for transmission over the communications channel,

wherein the pre-processing does not depend on the current channel condition.

2. (Original) The method in claim 1, wherein the current condition is the current condition of the communications channel.

3. (Original) The method in claim 2, wherein the current condition is the current condition of the communications channel during a current transmission time interval.

4. (Original) The method in claim 1, wherein the current condition relates to a communications service.

5. (Original) The method in claim 1, wherein the pre-processing includes channel encoding the data packets at a fixed coding rate.

6. (Original) The method in claim 1, wherein the pre-processing includes combining the data packets into data blocks.

7. (Original) The method in claim 6, wherein the pre-processing includes adding supplemental bits to each of the data packets before combining.

8. (Original) The method in claim 7, wherein the supplemental bits include one or more of the following types of information: error detection information, error correction information, tail information, and data packet sequence information.

9. (Original) The method in claim 6, wherein the pre-processing includes channel encoding the data blocks at a fixed coding rate to form the pre-processed data blocks.

10. (Original) The method in claim 1, wherein the processing includes obtaining a coding rate desired for the current condition.

11. (Currently Amended) The method in claim 1, wherein the ~~processing includes~~ employing a modulation scheme desired for the current condition group of modulation schemes includes: QPSK, 8-PSK, 16-QAM, AND 64-QAM.

12. (Canceled).

13. (Original) The method in claim 1, wherein the processing includes combining the pre-processed data packets.

14. (Original) The method in claim 13, wherein the combining is performed based on the current condition.

15. (Currently Amended) The method in claim 13, wherein the processing further includes manipulating the combined pre-processed data packets to achieve a coding rate desired for the current channel condition.

16. (Currently Amended)) The method in claim 15, wherein the manipulating is performed in accordance with a puncturing scheme selected based on the detected current channel condition that achieves the desired coding rate.

17. (Canceled).

18. (Original) The method in claim 6, further comprising:
waiting for an acknowledgement signal for each of the data blocks, and
if an acknowledgement signal is not received for one of the data blocks, retransmitting the data block.

19. (Original) The method in claim 18, further comprising:
storing the data blocks in a retransmission buffer awaiting the acknowledgement signal.

20. (Original) The method in claim 19, further comprising:
retransmitting an unacknowledged data block using the same processing employed when the unacknowledged data block was first transmitted.

21. (Original) The method in claim 19, further comprising:
retransmitting an unacknowledged data block using different processing from the processing employed when the unacknowledged data block was first transmitted.

22. (Currently Amended) ~~The method in claim 1~~ A method for processing data packets for transmission over a communications channel, comprising:
pre-processing data packets for transmission over the communications channel including performing a first coding operation on those data packets to form pre-processed data packets;
detecting a current channel condition; and
processing the pre-processed data packets based on the detected current condition to form processed data packets ready for transmission over the communications channel.

wherein the pre-processing does not depend on the current condition and ~~wherein the pre-~~
processing includes:

combining a first set of data blocks to produce a first set of combined data blocks;
combining a second set of data blocks to produce a second set of combined data blocks;
encoding the first set of combined data blocks to produce a first channel encoded data
block;
encoding the second set of combined data blocks to produce a second channel encoded
data block; and

wherein the processing includes:
combining the first and second channel encoded data blocks in a manner that depends on
the detected current channel condition to produce a combined channel encoded data block;
selecting a puncturing pattern based on the detected current channel condition;
puncturing one or more bits from the combined channel encoded data block in
accordance with the selected puncturing pattern to achieve a desired coding rate; and
selecting one of plural modulation schemes based on the detected current channel
condition; and
modulating the punctured data block in accordance with ~~a desired~~ the selected
modulation scheme.

23. (Original) The method in claim 22, further comprising:
adding supplemental information to a first set of data packets to produce the first set of
data blocks, and
adding supplemental information to a second set of data packets to produce the second set
of data blocks.

24. (Canceled).

25. (Canceled)

26. (Currently Amended) The method in claim 22, further comprising:

determining the desired channel rate based on the detected channel condition.

27. (Canceled).

28. (Previously Presented) The method in claim 22, further comprising:

detecting a change in current transmission condition, and

determining how the first and second channel encoded data blocks should be combined

based on the changed condition.

29. (Previously Presented) The method in claim 22, further comprising:

detecting a change in current transmission condition, and

determining a new desired channel rate from the changed condition.

30. (Currently Amended) The method in claim 22, further comprising:

detecting a change in current transmission condition, and

determining a new ~~desired~~ modulation scheme from the changed condition.

31. (Original) The method in claim 22, further comprising:

waiting for an acknowledgement signal for the first and second channel encoded data blocks;

detecting that one of the first and second channel encoded data blocks is not acknowledged; and

retransmitting the one channel encoded data block.

32. (Original) The method in claim 22, further comprising:

storing the first channel encoded data block in a first buffer, and

storing the second channel encoded data block in a second buffer.

33. (Original) The method in claim 32, further comprising:

retransmitting one of the first or second encoded data blocks from a corresponding one of the first and second buffers.

34. (Currently Amended) Apparatus for use in a transmitter which transmits data over a communications channel, comprising:

a first processing stage configured to pre-process data packets for transmission over the communications channel including performing a first coding operation on those data packets to form pre-processed data packets;

a detector configured to detect a current communications channel condition; and

a second processing stage configured to process the pre-processed data packets including modulating the pre-processed data packets using a modulation scheme selected from a group of different modulation schemes based on the detected communications channel condition and coding the pre-processed data packets using a coding rate selected from a group of different coding rates based on the detected current channel condition to form processed data packets ready for transmission over the communications channel,

wherein the first processing stage pre-processing does not depend on the current communications channel condition.

35. (Original) The apparatus in claim 34, further comprising:

a controller configured to control the configuration of the second processing stage based on the detected communications condition.

36. (Original) The apparatus in claim 34, wherein the first processing stage includes a channel encoder configured to encode the data packets at a fixed coding rate.

37. (Original) The apparatus in claim 34, wherein the first processing stage is configured to combine the data packets into data blocks.

38. (Original) The apparatus in claim 37, wherein the first processing stage is configured to add supplemental bits to each of the data packets before combining.

39. (Original) The apparatus in claim 38, wherein the supplemental bits include one or more of the following types of information: error detection information, error correction information, tail information, and data packet sequence information.

40. (Canceled).

41. (Currently Amended) The apparatus in claim 34, wherein the ~~second processing stage is configured to employ a~~ group of modulation scheme schemes includes: QPSK, 8-PSK, 16-QAM, and 64-QAM ~~desired for the current condition.~~

42. (Original) The apparatus in claim 34, wherein the second processing stage is configured to combine the pre-processed data packets.

43. (Currently Amended) The apparatus in claim 42, wherein the combining is performed based on the current channel condition.

44. (Currently Amended)) The apparatus in claim 34, wherein the second processing stage is configured to manipulate the combined pre-processed data packets ~~to achieve a coding rate desired for the current condition~~ using a puncturing scheme selected based on the detected current channel condition.

45. (Original) The apparatus in claim 34, further comprising:
a buffer configured to store the pre-processed data packets.

46. (Currently Amended) ~~The apparatus in claim 34,~~ Apparatus for use in a transmitter which transmits data over a communications channel, comprising:

a first processing stage configured to pre-process data packets for transmission over the communications channel including performing a first coding operation on those data packets to form pre-processed data packets;

a detector configured to detect a current communications channel condition; and

a second processing stage configured to process the pre-processed data packets based on the detected communications condition to form processed data packets ready for transmission over the communications channel,

wherein the first processing stage pre-processing does not depend on the current communications condition and wherein the first processing stage includes:

a first combiner configured to produce a first set of combined packets;

a second combiner configured to produce a second set of combined packets;

a first encoder, coupled to the first packet combiner, configured to encode the first set of combined packets;

a second encoder, coupled to the second packet combiner, configured to encode the second set of combined packets; and

wherein the second processing stage includes:

a third combiner, coupled to the first and second encoders, configured to combine the first and second set of encoded packets into a combined output in a manner that depends on the detected current channel condition;

a puncturing controller, coupled to the third combiner, configured to puncture the combined output in accordance with a puncturing pattern selected based on the detected current channel condition to ~~achieved~~ achieve a desired coding rate; and

a modulator, coupled to the puncturing controller, configured to modulate the punctured output in accordance with a modulation scheme selected from plural different modulation schemes based on the detected current channel condition for transmission over the communications channel.

47. (Original) The apparatus in claim 46, further comprising:

a first packet processor configured to add supplemental information to a first set of data packets to produce the first set of data blocks, and

a second packet processor configured to add supplemental information to a second set of data packets to produce the second set of data blocks.

48. (Canceled).

49. (Canceled)

50. (Currently Amended) The apparatus in claim 46, further comprising:

a controller configured to determine the desired channel rate based on the detected channel condition.

51. (Canceled).

52. (Previously Presented) The apparatus in claim 46, wherein the first and second packet combiners and the first and second encoders are configured to function independently of the transmission condition.

53. (Original) The apparatus in claim 46, further comprising:

a first buffer storing the first channel encoded data block, and

a second buffer storing the second channel encoded data block.